



INITIATIVE 4:

ENHANCE PUBLIC INFORMATION

EXISTING RTA INFORMATION AND POTENTIAL IMPROVEMENTS

For people to be able to use transit, they must first know that it is there and be able to understand how to use it. This means that it is extremely important for transit systems to provide clear and concise information on their available services. Furthermore, transit typically serves a very broad cross-section of an area's residents, workers, and visitors. Because different people access, use, and process information in different ways, transit systems must deliver information in a number of different ways. For example, many seniors are not web-literate, and thus the provision of information via the web will not reach many older residents. For this reason, telephone and printed information must be provided. However, telephone and printed information will not reach many younger riders, who rely primarily on the internet. For transit systems to reach the people that they are there to serve, it is essential that they provide effective information in ways that will reach all potential riders.

BASIC TYPES OF PUBLIC INFORMATION AND DELIVERY METHODS

There are two types of basic service information that all transit systems provide:

1. Route and schedule information (maps, schedules, and information on connections)
2. Basic information on how to ride (fare policy, stop locations, accommodation of riders with disabilities, accommodation of bicycles, etc.)

These types of information are delivered in a variety of ways (see Figure 1):

1. Traditional delivery methods include printed maps and schedule cards, and "rider guides." These are often distributed physically onboard buses and at key transit locations.
2. As with other types of information, the majority of distribution has moved to the internet. Nearly all transit systems now provide service information on their websites where users can either view it electronically or print it at home or in their office.
3. Third-party distribution systems have also become increasingly common. Most major transit systems now present route and schedule information through Google Transit, and smaller transit systems are also moving in this direction. Many transit systems are also now making their Google Transit data publicly available for use in the development of third party smartphone apps.

In addition, transit systems are increasingly providing real-time service information. This information can be provided via signage at stations and stops, via traditional websites, and via smart phone mobile websites and apps.

Most of Massachusetts' RTAs provide much of this information. However, as described below, there is significant room for improvement; the provision of better information could make service easier to use throughout the state and potentially attract new riders.

BEST PRACTICES

Most large transit agencies provide a wide array of public information, telephone support, printed materials, fully featured websites, and real-time information. In Massachusetts, the MBTA is an excellent example of



Figure 1: Public Information Examples

| System Map | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|--|---------|-----------------|---------|---------|---------|---------|---------|--|--|-----------|---|---|---|---|---|---|---|---|------------------------------|---------|---------|---------|---------|--|--|--|---------|------------------------|---------|---------|---------|---------|--|--|--|---------|-------------------|--|--|--|--|---------|---------|---------|--|----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|--------------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Printed Schedules and Route Maps | <div><div><p>Metrowest Regional Transit Authority</p><p>Scheduled times are only approximate; please wait for the MWRTA ten minutes in advance of scheduled times to assure not missing the bus.</p><p>For up to the minute bus information call the MWRTA at 508.935.2222 or 888.996.9782, or visit www.mwrt.com.</p></div><table><caption>Route 1 Weekday Service - Woodland Gr</caption><tr><th></th><th colspan="8">MORNING COMMUTE</th></tr><tr><th>Eastbound</th><th>A</th><th>B</th><th>C</th><th>D</th><th>A</th><th>B</th><th>C</th><th>E</th></tr><tr><td>Central Hub, 37 Waverley St.</td><td>5:45 AM</td><td>6:15 AM</td><td>6:45 AM</td><td>7:00 AM</td><td></td><td></td><td></td><td>2:30 PM</td></tr><tr><td>Concord/Howard Streets</td><td>5:50 AM</td><td>6:20 AM</td><td>6:50 AM</td><td>7:05 AM</td><td></td><td></td><td></td><td>2:35 PM</td></tr><tr><td>Staples Drive (D)</td><td></td><td></td><td></td><td></td><td>7:40 AM</td><td>8:10 AM</td><td>8:40 AM</td><td></td></tr><tr><td>Rhode Pass Park & Ride (D)</td><td>6:00 AM</td><td>6:30 AM</td><td>7:00 AM</td><td>7:30 AM</td><td>8:00 AM</td><td>8:30 AM</td><td>9:00 AM</td><td>2:45 PM</td></tr><tr><td>Matworks</td><td>6:07 AM</td><td>6:37 AM</td><td>7:07 AM</td><td>7:37 AM</td><td>8:07 AM</td><td>8:37 AM</td><td>9:07 AM</td><td>2:50 PM</td></tr><tr><td>Overbrook Drive (Natick line)</td><td>6:25 AM</td><td>6:55 AM</td><td>7:25 AM</td><td>7:55 AM</td><td>8:25 AM</td><td>8:55 AM</td><td>9:25 AM</td><td>2:53 PM</td></tr><tr><td>Cedar Street</td><td>6:35 AM</td><td>7:05 AM</td><td>7:35 AM</td><td>8:05 AM</td><td>8:35 AM</td><td>9:05 AM</td><td>9:35 AM</td><td>3:00 PM</td></tr><tr><td>Wells Office Park</td><td>6:38 AM</td><td>7:08 AM</td><td>7:38 AM</td><td>8:08 AM</td><td>8:38 AM</td><td>9:08 AM</td><td>9:38 AM</td><td>3:02 PM</td></tr><tr><td>Newton-Wellesley Hospital</td><td>6:42 AM</td><td>7:12 AM</td><td>7:42 AM</td><td>8:12 AM</td><td>8:42 AM</td><td>9:12 AM</td><td>9:42 AM</td><td>3:04 PM</td></tr><tr><td>Woodland T. Shaw</td><td>6:45 AM</td><td>7:15 AM</td><td>7:45 AM</td><td>8:15 AM</td><td>8:45 AM</td><td>9:15 AM</td><td>9:45 AM</td><td>3:05 PM</td></tr></table></div> | | MORNING COMMUTE | | | | | | | | Eastbound | A | B | C | D | A | B | C | E | Central Hub, 37 Waverley St. | 5:45 AM | 6:15 AM | 6:45 AM | 7:00 AM | | | | 2:30 PM | Concord/Howard Streets | 5:50 AM | 6:20 AM | 6:50 AM | 7:05 AM | | | | 2:35 PM | Staples Drive (D) | | | | | 7:40 AM | 8:10 AM | 8:40 AM | | Rhode Pass Park & Ride (D) | 6:00 AM | 6:30 AM | 7:00 AM | 7:30 AM | 8:00 AM | 8:30 AM | 9:00 AM | 2:45 PM | Matworks | 6:07 AM | 6:37 AM | 7:07 AM | 7:37 AM | 8:07 AM | 8:37 AM | 9:07 AM | 2:50 PM | Overbrook Drive (Natick line) | 6:25 AM | 6:55 AM | 7:25 AM | 7:55 AM | 8:25 AM | 8:55 AM | 9:25 AM | 2:53 PM | Cedar Street | 6:35 AM | 7:05 AM | 7:35 AM | 8:05 AM | 8:35 AM | 9:05 AM | 9:35 AM | 3:00 PM | Wells Office Park | 6:38 AM | 7:08 AM | 7:38 AM | 8:08 AM | 8:38 AM | 9:08 AM | 9:38 AM | 3:02 PM | Newton-Wellesley Hospital | 6:42 AM | 7:12 AM | 7:42 AM | 8:12 AM | 8:42 AM | 9:12 AM | 9:42 AM | 3:04 PM | Woodland T. Shaw | 6:45 AM | 7:15 AM | 7:45 AM | 8:15 AM | 8:45 AM | 9:15 AM | 9:45 AM | 3:05 PM |
| | MORNING COMMUTE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eastbound | A | B | C | D | A | B | C | E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Concord/Howard Streets | 5:50 AM | 6:20 AM | 6:50 AM | 7:05 AM | | | | 2:35 PM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Rhode Pass Park & Ride (D) | 6:00 AM | 6:30 AM | 7:00 AM | 7:30 AM | 8:00 AM | 8:30 AM | 9:00 AM | 2:45 PM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Matworks | 6:07 AM | 6:37 AM | 7:07 AM | 7:37 AM | 8:07 AM | 8:37 AM | 9:07 AM | 2:50 PM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Cedar Street | 6:35 AM | 7:05 AM | 7:35 AM | 8:05 AM | 8:35 AM | 9:05 AM | 9:35 AM | 3:00 PM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Website | <div><div><p>Cape Cod Regional Transit Authority</p><p>About Us Schedules Fares & Passes Riding the CCRTA News Contact Us Additional Links</p><p>Welcome to the Cape Cod Regional Transit Authority</p><p>Cape Cod's Public Transportation System with Bus and Trolley Service to most towns from Woods Hole to Provincetown and to 15 Boston area Hospitals.</p><div><div><p>Bus Schedules and Maps</p></div><div><p>Call-a-Ride b-bus</p></div><div><p>Seasonal Service</p></div><div><p>Hyannis Transportation Center</p></div><div><p>Google Trip Planner</p><p>Click here to access the CCRTA Google Trip Planner to plan your trip online.</p></div></div><div></div></div></div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Real-Time Information | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Google Transit | <div><div><div><div><p>B23</p></div><div><p>11:58am - 12:25pm</p></div><div>27 mins</div></div><div><div><p>B23</p></div><div><p>12:58pm - 1:25pm</p></div><div>27 mins</div></div><div><div><p>B23</p></div><div><p>1:58pm - 2:25pm</p></div><div>27 mins</div></div></div><div><p>Transit directions to Woodside Terrace</p><p>42.192116, -72.648338</p><p>Homestead / Sheehan</p><p>B23 Bus towards Westfield via Soldiers Home/Lanis/HCC</p></div></div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



how to provide information. Increasing, smaller agencies are beginning to provide the same array of information as larger agencies. Three examples are provided below.

Rock Island County Metropolitan Mass Transit (MetroLINK)

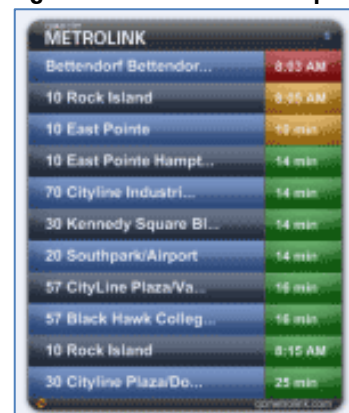
MetroLINK provides service in Rock Island and East Moline, Iowa, which is the Iowa half of the Quad Cities area.¹ MetroLINK provides a wide variety of public information. In addition to standard information such as maps, schedules, and fare information, this includes:

- A printed Rider's Guide that provides information on MetroLink service, as well transit services provided on the Illinois side of the Mississippi River
1. A full-featured website (www.gogreenmetro.com) that provides (see Figure 2):
 1. Service alerts
 2. Google trip planner
 3. Real-time information for key locations
 4. Rider guides (including videos)
 1. A "widget" that users can install on their own computer desktops that continuously displays real-time service information (see Figure 3)
 2. A mobile website for smartphones
 3. Schedule information via text messages at over 200 stops
 4. A Facebook page

Figure 2: MetroLINK Website



Figure 3: MetroLINK Desktop Widget



¹ As described in *Initiative 9, Cross-Border Collaboration*, MetroLINK is one of four transit systems in the Quad City area, and the four collaborate on the provision of public information and other efforts.



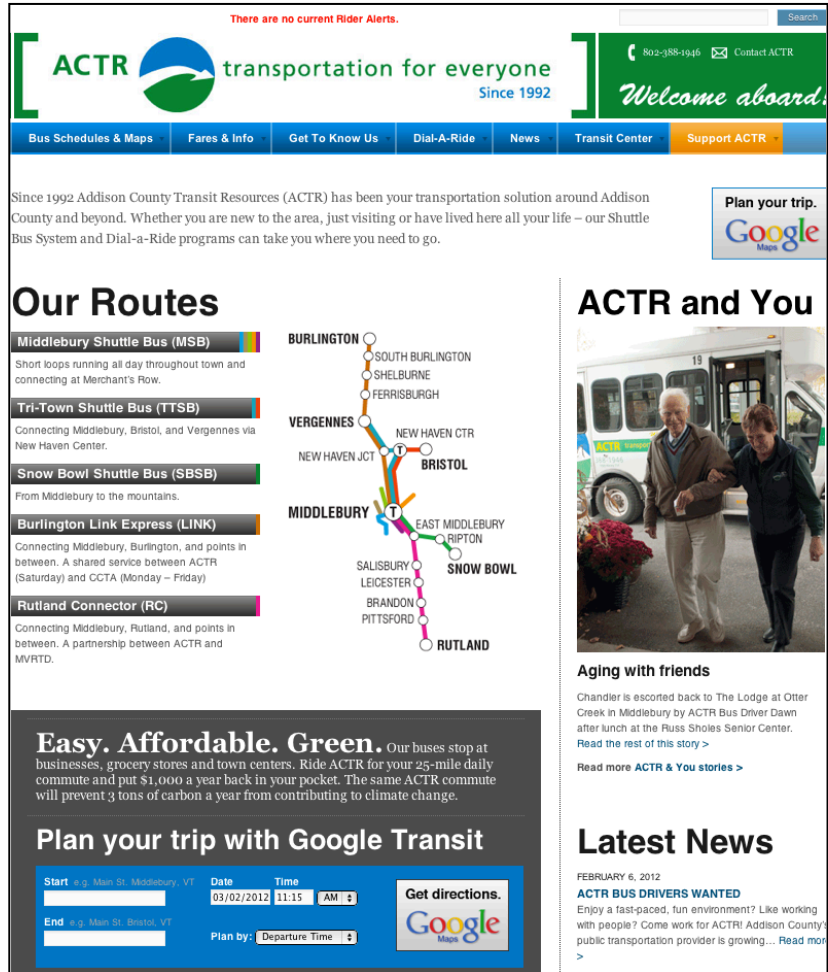
Addison County Transit Resources (ACTR)

ACTR is small transit system that serves Addison County, Vermont, with most services focused on Middlebury. ACTR also provides a wide variety of information in addition to standard information such as maps, schedules, and fare information, and this includes:

5. A printed Rider's Guide that presents information on all ACTR services, including route maps and schedules, and "how to ride" information.
6. An attractive website (www.actr-vt.org) that provides (see Figure 4):
 7. Service alerts
 8. Google trip planner
 9. Rider guides
10. Information on regional connections
11. Updates via Twitter
12. A Facebook page

ACTR also uses its website to recruit drivers and solicit sponsorships and donations (as described in more detail in *Initiative 7, Identify Additional Funding*).

Figure 4: ACTR Website



Chittenden County Transit Authority (CCTA) and Green Mountain Transit Authority (GMTA)

Many transit systems serve large areas where it is difficult to display all system information on a single map. In Vermont, Burlington's CCTA and Montpelier's GMTA each serve large geographical areas, and they also collaborate on regional service between the two cities. In total, service extends approximately 80 miles from east to west and 80 miles from north to south. To display all of this information on a single map, the two agencies publish on their websites (www.cctaride.org and www.gmtaride.org) a large overview map that users can then drill down into for more detailed maps.² As shown in Figure 5, the first page is a large systemwide map designed to provide orientation and an overview of available services. From there users click on "tiles" that link to detailed area maps.

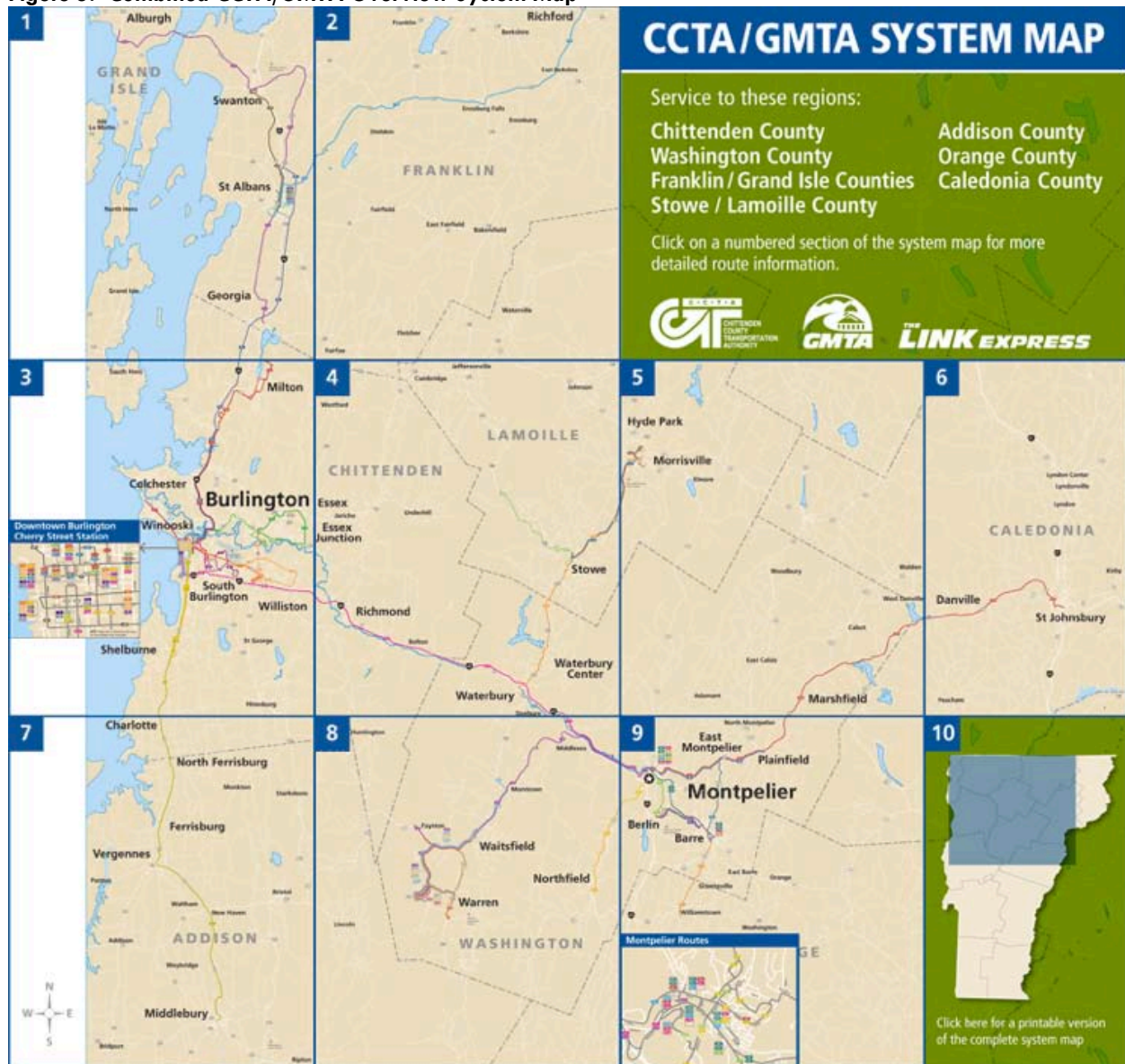
² This is the same approach used by the MBTA on its web system map, but encompasses a larger area and the services provided by multiple agencies.



BEYOND BOSTON

A TRANSIT STUDY FOR THE COMMONWEALTH

Figure 5: Combined CCTA/GMTA Overview System Map



REVIEW OF CURRENT TRANSIT INFORMATION IN MASSACHUSETTS

Any assessment of the public information provided by transit systems is to a certain degree subjective. However, there is also a large body of research on what works, what does not, and best practices. This research from sources such as the Transit Cooperative Research Program (TCRP) and the Center for Urban Transportation Research (CUTR) at the University of South Florida provide a baseline for assessing the practices of transit agencies. The referenced research is listed at the end of this report.

In addition, the types of information that are being provided, and the delivery methods, are changing rapidly through the use of technology, and often faster than available research. To assess the effectiveness of the information provided by Massachusetts' RTAs in the context of recent advances, Nelson\Nygaard asked



four junior staff members, from offices outside of New England and who have no involvement in this project or detailed knowledge of any of the RTAs, to assess the quality and ease of use of available information. These staff are all transit users who frequently use the public information provided by a variety of different transit systems.

This review assessed each RTA's public information in terms of:

- System maps
- Schedules
- Websites
- Real-time information
- Google Transit implementation

System Maps

System maps illustrate a transit system's entire network of services. Riders reference system maps to help them plan and travel within the transit system. System maps should be available as an actual printed map (usually onboard transit vehicles or at transit customer service centers) and also as a digital map suitable for viewing and printing on a home computer or mobile device.

System maps typically follow one of two basic designs—overlay or schematic (see Figures 6 and 7). An overlay map design resembles a typical map with additional transit information “overlaid” onto the base map. This design provides a wealth of detail and content for reference—roads, schools, physical topography, points of interest, etc. A schematic map design is a more abstract representation of the transit system, with minimal additional detail. This design maximizes readability and minimizes clutter. Some maps seek to combine elements of both design styles, though they are still primarily one or the other.³

Figure 6: NRTA Overlay System Map

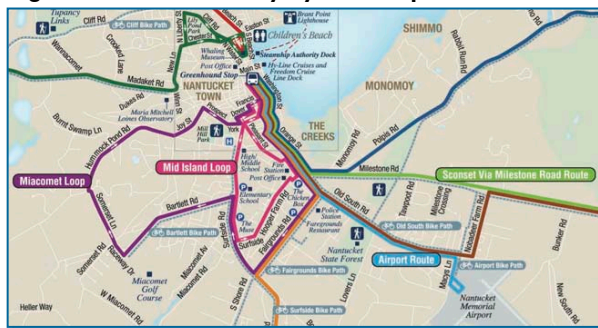
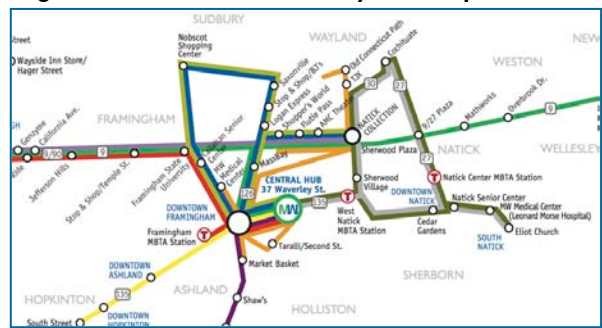


Figure 7: MWRTA Schematic System Map



Most, but not all, Massachusetts RTAs publish a system map on their website, and the available maps were assessed in terms of readability, usability, and accessibility. As summarized in Table 1, the effectiveness of available system maps is mixed, and ranges from excellent to not available. Maps were evaluated based on their readability, ease of use, and ability to download and use at home. The best Massachusetts RTA thematic map is produced by NRTA (as was shown in Figure 6), and is an excellent map by any standard. The best Massachusetts example of a schematic system map is MWRTA's system map (as was shown in Figure 7). The map has a clean and professional look, with well-chosen fonts, colors, and symbols. However, this map style provides a minimal level of reference detail such as street names which makes using them difficult for new riders and those trips requiring transfers between routes. The lack of reference detail requires the user to consult individual route maps for detailed information.

³ Designing Printed Transit Information Materials: A Guidebook for Transit Service Providers, Center for Urban Transportation Research, (2008)



Table 1: System Map Implementation among RTAs

| RTA | Online System Map? | Notes |
|-------|--------------------|---|
| BAT | Yes | Easy to find and read; clickable downtown map. |
| BRTA | Yes | Routes overlap and are not offset or colored, which makes it more difficult to read. |
| CATA | Yes | Attractive and easy to read; includes area MBTA commuter rail map; will not open in Google Chrome; doesn't show where the Yellow Line goes to the southwest. |
| CCRTA | Yes | Not very readable (a lot of additional content on the map); route symbology is not clear; however, includes a plethora of other information including connections to GATRA, Plymouth, Brockton, and Peter Pan. |
| FRTA | Yes | Map is not very easy to read due to thin lines and unnecessary background content, including all streambeds. |
| GATRA | No | No complete system map, but good local maps. |
| LRTA | No | No system map available, though the individual route maps are fairly usable and well-designed (however, many appear sideways on screen). |
| MART | Yes | Map covers most of system but not all service. |
| MWRTA | Yes | Very attractive; diagrammatic style, but which requires using individual route maps for detailed service information. |
| MVRTA | No | No system map; offers individual maps with Google Maps (but with no offsetting to distinguish routes); uses transparency to show overlapping routes, though is unusable if many routes are turned on simultaneously. |
| NRTA | Yes | Very high quality map; usable and appealing; includes major stops for transfer opportunities; has downtown inset and ferry information. |
| PVTA | Yes | Offered in a scalable and a downloadable version; not very easy to read due to thin lines and unnecessary background content. |
| SRTA | No | No complete system map, but most riders are likely oriented to Fall River or New Bedford service and these local maps are provided. However these maps are poorly designed—street names are too small to read and the map lacks visual hierarchy. Poor route offsetting makes routes difficult to follow. |
| VTA | Yes | Map appears busy and cluttered. Unusual font choices, and very bright color palette. Also poor route offsetting makes it difficult to follow various routes. |
| WRTA | Yes | System map appears “busy” due to poor design and a lack of visual hierarchy. All routes are one color, making it difficult to follow individual routes and understand the system. |

Four RTAs—GATRA, LRTA, MVRTA, and SRTA—do not provide system maps (although LRTA currently has one under development). GATRA and SRTA both provide service to a number of geographically distinct areas, and do provide maps for those areas. However, an approach similar to that used by CCTA and GMTA in Vermont (as described above) could provide better a regional context for riders.

Schedules

Route-by-route schedules with accompanying route maps are a second basic type of information that transit systems provide. Some transit systems, especially larger ones, produce individual “schedule cards” for each route; other transit systems, most often smaller ones, include these on their system maps. Schedules are usually available in printed form onboard transit vehicles and at key locations. They also appear on agency websites. This review evaluated the schedule content published on each agency’s website.



Based on a TCRP and CUTR national review⁴ of public information, this is one area where the greatest improvements are needed. Throughout the country, a large proportion of transit riders view schedule cards (and their associated downloadable versions) as unclear, poorly designed, lacking in sufficient reference information and basic facts such as service hours or frequency. This is generally also the case in Massachusetts, as many published schedules are not easy to read, lack adequate information, or are not available on RTA websites (see Table 2). In addition, a number have clearly presented schedule information, but no accompanying map on the same page or at least in the same file, which makes understanding the service and planning a trip difficult. One RTA (BAT) distributes maps in Microsoft Word format (rather than PDF), which is a format that does not display in web browsers and is not loadable for many users. TCRP studies recommend that schedules be provided in PDF format since most web browsers can load these files, formatting will be consistent for all users, and they can be made accessible for users with a disability.

Table 2: Printed Schedule Implementation among RTAs

| RTA | Downloadable Schedules? | Notes |
|-------|-------------------------|--|
| BAT | No | Distributed in Microsoft Word, which is important for some users with ADA needs, but not loadable for others; not very readable; missing important content such as associated route maps and interim time points (schedules only list first and last stop). |
| BRTA | Yes | The “Schedules” link on the home page links to online-only schedules with no PDF versions. However, PDF versions are available on the bottom of the home page and easily missed. These schedules on these downloadable PDFs read down, not across—which is not standard and research has shown that riders have a difficult time using schedules in this format. ⁵ In addition, AM and PM times are not differentiated. |
| CATA | Yes | Good looking; all route schedules packaged into one downloadable PDF file. However some individual route maps are impossible to understand what the route does—see the Orange Line map). |
| CCRTA | Yes | Schedule reads down, not across (see notes on this format above for BRTA). Also, PDF schedules do not feature an accompanying route map, which makes using them difficult. |
| FRTA | No | Schedules offered in online tables only—no downloadable PDF versions. System map is not on same page, so the user has to click back and forth between the schedule and the map to understand the service. |
| GATRA | Yes | Downloadable PDF schedules are good looking, easy to read, and follow most recommendations from national research, though the maps lack sufficient detail. |
| LRTA | Yes | Downloadable PDF schedules are very basic and lack the associated route map, which makes using them difficult. |
| MART | Yes | Downloadable PDF schedules read down, not across (see note in BRTA above) and they do not include the associated route map, which makes using them difficult. |

⁴ TCRP Synthesis 43: Effective Use of Transit Websites (2002), TCRP Report 92: Strategies for Improved Traveler Information (2003), TCRP Report 45: Passenger Information Services: A Guidebook for Transit Systems (1999), CUTR Report: Designing Printed Transit Information Materials (2008).

⁵ Journal of Public Transportation, Vol. 9, No. 4, 2006. A Multidisciplinary Approach Toward Improving Bus Schedule Readability.



Table 2 (Continued): Printed Schedule Implementation among RTAs

| RTA | Downloadable Schedules? | Notes |
|-------|-------------------------|---|
| MWRTA | Yes | Downloadable PDF schedules have a wealth of information, have a high quality design typical of larger agencies, and are easy to read and use. Only negative is the schedules read down, not across (see note above for BRTA). |
| NRTA | No | NRTA doesn't publish standard schedules. Instead, they offer a description of each service (such as "the bus leaves every 30 minutes between 7:00 AM and 11:30 PM, and other limited time information). The information provided is difficult to interpret. |
| PVTA | Yes | Downloadable PDF schedules are standard and usable, however they do not feature an accompanying route map, which makes understanding the service difficult. |
| SRTA | No | SRTA provides schedules in two different formats. For Fall River and New Bedford service, they provide relatively low quality scans of their paper brochures. For Fairhaven/Acushnet/Mattapoisett Shuttle service they provide a two page description that appears to have been originally designed for internal use. |
| VRTA | Yes | Offers schedules as PNG image files, which maintain consistency for all users but are not accessible for users with a disability. Schedules read down, not across (see note in BRTA above). Schedules do not have accompanying map, which makes them harder to use. |
| WRTA | Yes | Downloadable PDFs are easily readable and follow best practices. |

Among Massachusetts' RTAs, MWRTA provides the best information (see Figure 8). MWRTA's printed schedules are user friendly, easy to read, include a wealth of information, and are visually appealing. (However, unconventionally, the trips on each schedule are read *down* and not *across*, which is a bit harder to read and not recommended by national research published in the Journal of Public Transportation.⁶)

Figure 8: MWRTA Schedule Card



Website Functionality

The internet has become the primary source of information for many riders, and all Massachusetts RTAs provide some level of service information via their websites. Common types of information include maps, schedules, fares, route-by-route information, service disruption updates, and trip planning

⁶ Journal of Public Transportation, Vol. 9, No. 4, 2006. A Multidisciplinary Approach Toward Improving Bus Schedule Readability.



assistance. A number of absolute minimum standards have emerged from TCRP studies *TCRP Synthesis 43: Effective Use of Transit Websites* and *TCRP Report 92: Strategies for Improved Traveler Information* (referenced at the end of this report) and industry experience. These include:

- System map
- Route-by-route schedule information and maps
- Complementary paratransit service information
- Fare information
- Service alerts (GATRA's website provides an excellent example of how to display service alerts, as shown in Figure 9)
- A rider guide to present basic information on how to use service (NRTA's website provides an excellent example of a comprehensive and prominently featured rider guide).

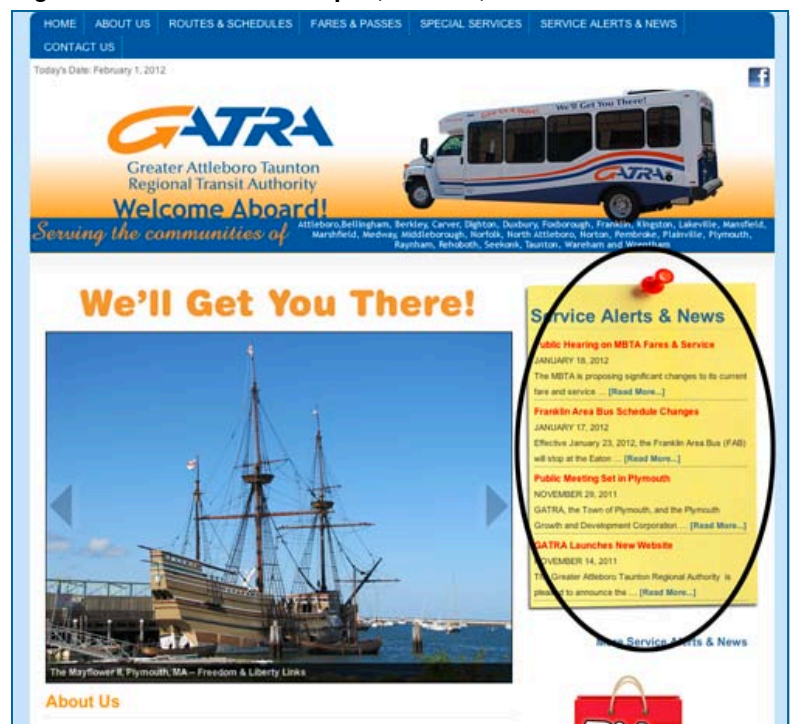
Emerging practices go above-and-beyond these minimums to provide additional features such as:

- Real-time information on vehicle locations and "next bus in ..." content.
- Trip planning service, either through a function on the website or through integration with Google Transit.
- Integration with social media such as Twitter and Facebook to provide service alerts and updates on transit initiatives.
- Customized website for mobile devices.
- Ability to purchase fares online.
- Customizable e-mail or SMS text alerts for service disruptions, agency news, etc.

To assess the websites of the Massachusetts RTAs, each site was reviewed (in January 2012) and subjectively rated on ten criteria using a scale of 1 to 5. The ten criteria corresponded with the minimum standards and best practices described above:

- **Visual design**—first impression, appropriate amount of content, good organization, professional appearance
- **Ability to find system map**
- **Ability to find fixed route information**—schedules for a particular route, route maps, service span, etc.
- **Ability to find demand response information**—service span, coverage maps, etc.
- **Placement of service alerts**—prominently placed updated information on service delays, disruptions, etc.
- **Ability to find fare information**
- **Ability to find, and quality of, rider guide**—how to ride transit, bicycles on transit, etc.

Figure 9: Service Alert Example (GATRA)








- **Links to other information**—telephone number, other transportation services, YouTube, Twitter, Facebook, or other social media websites. Social media sites are becoming an increasingly important mechanism to engage the public—most notably for discretionary riders.
- **Trip planner function**—easy to find and easy to use function that allows riders to plan a trip (often utilizes Google Transit)
- **Mobile version of website**—customized version of website for mobile devices

The composite results for each RTA are summarized in Table 3. Overall, only a few of the RTA's websites were reviewed favorably. Most were judged to have poor to mediocre visual design, and at least some information (when it was available) was hard to find. The websites that were rated the highest and lowest were:

Best (see Figure 10)

- **MWRTA (www.mwrta.com)**: MWRTA's website excels in organization and aesthetics, ease of finding fixed route information, ease of finding demand response information, and ease of finding fare information. The site makes particularly good use of white space. The site has a well-designed mobile version. The only significant negative is that the site lacks a comprehensive rider guide.
- **CCRTA (www.capecodrta.org)**: CCRTA's website excels in the ease of finding fixed route information, ease of finding demand response information, ease of finding fare information, and the trip planner function. Negatives are the absence of social media integration and the lack of a mobile version.
- **GATRA (www.gatra.org)**: GATRA's website excels in the placement of service alerts, ease of finding fixed route information, and a trip planner function. The site has a mobile version. However, the site does not offer a system map.

Figure 10: Best Massachusetts RTA Websites

| Best Websites | | |
|---|--|---|
| MWRTA | GATRA | CCRTA |
|  |  |  |

Least Effective

- **CATA (www.cataonline.org and www.canntran.com)**: CATA splits fixed route and demand response service into two separate and uncoordinated websites, which is confusing for users. Both sites lack a rider guide, a trip planner function, and integration with social media. The fixed route site does not offer service alerts or a rider guide. The fare information on the demand response site is difficult to find.
- **LRTA (www.lрта.com)**: This site has poor visual design. The site's home page suffers from content overload and a lack of organization, with too much information compressed onto the home page, which results in a very long page requiring continuous scrolling. The website doesn't offer a system map or a rider guide.



- **MART (www.mrta.us):** This site's organization is non-standard and confusing. For example, service information, including system and route maps, is not found under the "Service" section as would be expected, but is under the "Schedules" section and is listed by the community they serve—which requires the user to be somewhat familiar with the service area. The system maps (there are two) are very difficult to find. The site also makes poor use of white space—there are large areas of blank space in prominent spots on the home page, which pushes important content down, requiring unnecessary scrolling.

Table 3: RTA Website Review

| RTA | Overall Score (5 = excellent) | Website Notes |
|-------|----------------------------------|--|
| BAT | 3.4 | Visual design is basic and would benefit from an update; there is too much content on the home page and little visual hierarchy or organization. Fixed route and demand response service information, fare information, and the system map is easy to find. Site provides comprehensive rider guide, but no trip planner or mobile version. |
| BRTA | 3.3 | Visual design is cluttered and would benefit from an update. Fare information is easy to find. Rider guide offers basics, but is hidden on the "rules" page. No service alerts or mobile version. |
| CATA | 3.0 ⁷ | CATA maintains two separate websites, one for fixed route and the other for paratransit, with different web addresses (URLs). The visual design for both is basic, and CATA would be well served to select one site for upgrading. The sites are not coordinated and do not have a user-friendly structure or hierarchy. There are no service alerts, trip planner, or rider guide offered (other than safety information). The scrolling announcements box on the paratransit site is not user-friendly |
| CCRTA | 4.2 | Site is well designed from a visual perspective. Fixed route and demand response information is easy to find, fare information is easy to find, and a trip planner is available. No mobile version. |
| FRTA | 3.4 | Visual design is basic and would benefit from an update. Easy to find fixed route information, but system map is difficult to find with no direct link from the main page. No fare information, trip planner, or mobile version. Site is integrated with FRTA's Facebook page. |
| GATRA | 4.2 | Site is well designed from a visual perspective. Service alerts are prominent on home page, fixed route information is easy to find, and both a trip planner and mobile version are available.. |
| LRTA | 3.2 | Visual design is dated and home page scrolls for too long; there is too much content on the home page, no clear organization and no graphical consistency or organization. Demand response and fare information is easy to find, and site has a trip planner service. There is no system map, and many route maps are oriented incorrectly (displayed sideways). There is no mobile version. |
| MART | 3.0 | Visual design is basic and would benefit from an update; home page space is not well utilized and graphics are disproportional to text. Both fixed route and demand response information is hard to find. System map is hard to find. No trip planner, no mobile version. |
| MWRTA | 4.4 | Excellent organization and visual design, service alerts are prominent on home page, fixed route and demand response information is easy to find, fare information is easy to find, has trip planner, has well-designed mobile version, and site is integrated with Facebook page. No comprehensive rider guide. |

⁷ CATA has two different websites. Both were reviewed and ranked as 3.0 out of 5.0.



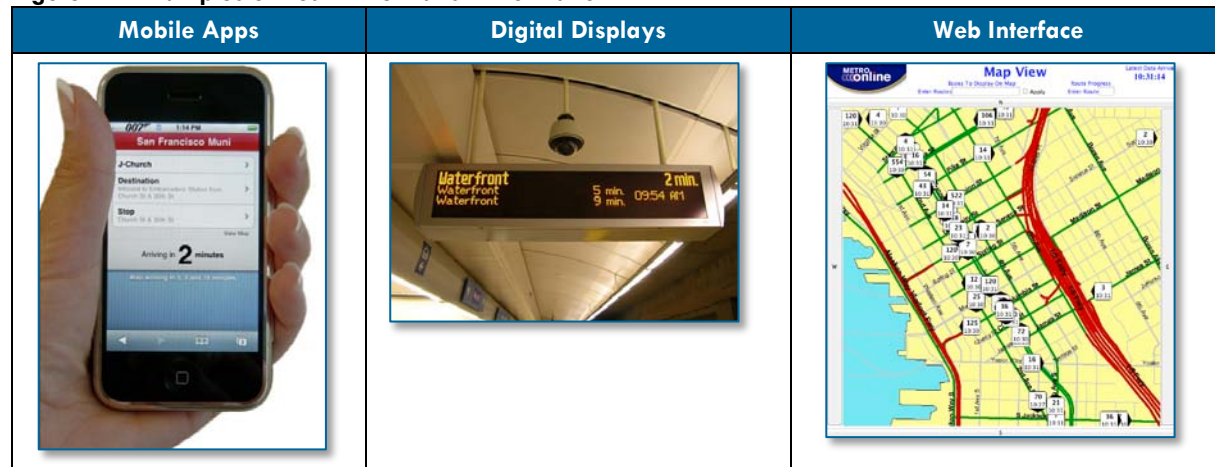
Table 3 (Continued): RTA Website Review

| RTA | Overall Score (5 = excellent) | Website Notes |
|-------|----------------------------------|--|
| MVRTA | 3.5 | Visual design is cluttered and not well organized. However, fixed route information and fare information are easy to find, and service alerts are prominently placed on home page. No trip planner or mobile version, and rider guide is buried in narrative FAQs. |
| NRTA | 3.7 | Site is well designed from a visual perspective. Fixed route, demand response, and fare information is easy to find, and the site has an excellent comprehensive rider guide. No service alerts, no trip planner, and no mobile version. |
| PVTA | 4.1 | Site design is somewhat cluttered and lacks visual hierarchy. Fixed route information and fare information are easy to find, there is a comprehensive and easy to find rider guide and trip planner. There is no mobile version. |
| WRTA | 3.7 | Site design lacks visual hierarchy and would benefit from an update. Subsequent webpages have no link back to home page. Scrolling service changes alert bar is distracting. Easy to find fixed route and demand response information, easy to find system map, easy to find fare information. No service alerts, no trip planner, no mobile version. Features Facebook and Twitter integration. |
| SRTA | 3.7 | Visual design is basic and would benefit from improved scale, organization and hierarchy. Easy to find fixed route and demand response information, easy to find system map, integration with Facebook page. No trip planner, mobile version, or rider guide. |
| VTA | 3.5 | Visual design is mediocre. Fixed route content is buried. No demand response information. Fare information is easy to find. No mobile version and no trip planner. |

Real-Time Information

Real-time information utilizes global positioning systems to track and predict the locations of transit vehicles in real time. This technology provides information on estimated arrival/departure times, vehicle locations, and service disruption or delay alerts. Once the back-end system has been installed to track vehicles and deliver this information to the agency's computers, the options for serving this real-time information to the rider are numerous (see Figure 11). Common options for offering real-time information include text messages, a web interface, mobile applications, and digital signage at stations and stops (see the example in Figure 7 below). Some large transit agencies are placing individualized bus stop numbers or scan

Figure 11: Examples of Real-Time Transit Information:





codes on bus stop signage, which allows users to text for information or scan the code with their mobile phone and receive real-time service information for that stop.

In Massachusetts, the following RTAs provide real-time information (see Table 4):

1. CCRTA at its Hyannis Transportation Center and via its desktop internet site
2. MWRTA via its desktop internet site and a smartphone-based mobile site
3. MART via its desktop internet site
4. NRTA via a smartphone-based mobile site, and via desktop-based internet beginning in the spring)

In addition, FRTA will provide station-based real-time information at its new intermodal center. Other Massachusetts RTAs do not provide any form of real-time information.

Table 4: Real-Time Information Implementation among RTAs

| RTA | Web-Based | Smart-phone | At Stops/ Stations | Real-Time Info |
|-------|-----------|-------------|-----------------------|---|
| BAT | | | | No Real-Time info provided |
| BRTA | | | | No Real-Time info provided |
| CATA | | | | No Real-Time info provided |
| CCRTA | √ | | √ | Web map with real-time bus locations; detailed information on location, heading, and speed; also provides real-time information at its Hyannis Transportation Center (HTC). |
| FRTA | | | √ | Will be provided at new intermodal center, which will open in 2012. |
| GATRA | | | | No Real-Time info provided |
| LRTA | | | | No Real-Time info provided |
| MART | √ | | | Has map with real-time bus locations; slow loading; does not offer wait time information at stops. |
| MWRTA | √ | √ | | Has map with real-time bus locations; does not offer wait time information at stops. |
| MVRTA | | | | No Real-Time info provided |
| NRTA | √ | √ | | TransLoc smartphone-based system; web-based beginning in spring. |
| PVTA | | | | Initiatives currently underway to provide Real-Time info via web site, QR codes at major stops, and at RTIC, with implementation in 2012 and 2013 |
| SRTA | | | | No Real-Time info provided |
| VTA | | | | No Real-Time info provided |
| WRTA | | | | Web-based Real-Time info will be provided later in 2012 |

Google Transit Implementation

Google Transit integrates transit routes, stops, and schedules within Google Maps, and it allows users to plan transit trips from within Google Maps. The use of Google Transit has become increasingly common, and it is often the first place that younger riders will go to find transit information. Google Transit can also be a source of information for trips that require use of services provided by different transit systems, since it is not tied to any individual system. Google Transit can also be accessed via smartphones.



While participation in the Google Transit program is “free,” it does require an agency to provide Google with service data in a specialized Google Transit Feed format on an ongoing basis. Therefore it does require staff time to participate in the program and offer this service. Currently, only five RTAs participate in Google Transit: CCRTA, GATRA, LRTA, MWRTA, and PVRTA. SRTA is in the process of implementing Google Transit, and MassDOT has undertaken an initiative to implement Google Transit statewide.

POTENTIAL PUBLIC INFORMATION IMPROVEMENTS

Summary of Issues

As in the transit industry as a whole, the public information practices among the Massachusetts RTAs vary greatly. There are no minimum guidelines or directives to achieve consistency regarding public information practices across the state. Even within each RTA, there is much variation in the functionality and ease-of-use across different information platforms—an RTA may maintain a great website, but fail to offer downloadable schedule cards.

National research helps to provide an understanding of the minimum standards, as well as best practices, that might be pursued in the area of public information. Adopting minimum standards or identifying desirable best practices could help agencies to:

- Upgrade the quality of public information products (system maps, schedule cards, etc.)
- Improve the user-friendliness of Massachusetts transit services
- Improve public information consistency among RTAs
- Widen the appeal of transit to new market demographic segments
- Provide better customer service to existing customers and attract new riders

Actions to Consider

Potential improvements—for discussion at the March workshop—to address the above issues include:

1. Are there basic information items that should be provided by all RTA's?
 - System map and individual route schedules?
 - Service alerts?
 - Rider guide?
 - Statewide or regional maps similar to CCTA/GMTA regional map?
 - Other?
2. Are there best practices or new technologies that the state should encourage RTAs to pursue (e.g. ongoing Google Transit initiative)?
 - Mobile phone apps?
 - Real time passenger information
 - Other?
3. How can MassDOT support RTAs in the development of new information platforms and applications?
 - Develop guidelines to assist RTAs?
 - Provide templates for schedule design or website design?



- Statewide blanket contracts for new technologies or sample RFPs?
 - Are their Title VI concerns that need to be considered?
 - Translation services / information in different languages?
4. Can RTAs that have successfully implemented Google Transit or Real time information be helpful to their peers?
- Should MassDOT provide technical assistance?
 - How can MassDOT help support the distribution and availability of local transit information?



FOR MORE INFORMATION

For more information on industry standards and best practices in the field of public information, see:

TCRP Synthesis 43: Effective Use of Transit Websites, Transit Cooperative Research Program, National Academy Press, Washington, D.C. (2002):

<http://onlinepubs.trb.org/onlinepubs/tcrp/tsyn43.pdf>

TCRP Report 92: Strategies for Improved Traveler Information, Transit Cooperative Research Program, National Academy Press, Washington, D.C. (2003):

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_92.pdf

Passenger Information Services: A Guidebook for Transit Systems, Transit Cooperative Research Program, TCRP Report 45: National Academy Press, Washington, D.C. (1999):

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_45.pdf

Designing Printed Transit Information Materials: A Guidebook for Transit Service Providers, Center for Urban Transportation Research, University of South Florida, Tampa, FL (2008):

www.nctr.usf.edu/pdf/77710guidebook.pdf

A Multidisciplinary Approach Toward Improving Bus Schedule Readability. Journal of Public Transportation, Vol. 9, No. 4, 2006.

<http://www.nctr.usf.edu/jpt/pdf/JPT%209-4%20Sollohub.pdf>